



October 23, 2018

Elizabeth A. Rolando
Chief Clerk
Illinois Commerce Commission
527 E. Capital Ave.
Springfield, IL 62701
(SENT VIA E-MAIL)

Subject: Illinois Commerce Commission Notice of Inquiry Regarding Electric Vehicles (18-NOI-01)

Dear Elizabeth Rolando:

The Chicago Area Clean Cities Coalition (CACC) commends the Illinois Commerce Commission (ICC) for its leadership in launching the Notice of Inquiry Regarding Electric Vehicles (EV) on September 24, 2018 and hosting the two Commission Policy Sessions on Transportation Electrification held this year. Many of the specific answers the ICC is seeking through comments from stakeholders are being researched at this time. Identifying barriers and options for accelerating successful EV adoption should be an ongoing discussion at the ICC and throughout the State of Illinois as the EV market continues to mature. CACC appreciates the opportunity to provide comments in response to the ICC's current information gathering effort.

Clean Cities is a US Department of Energy (USDOE) program whose mission is to diversify fuels in the US transportation sector. Clean Cities coalitions are comprised of businesses, fuel providers, vehicle fleets, state and local government agencies, and community organizations. Since receiving official Clean Cities Coalition designation from DOE in 1994, our stakeholders have collaborated to meet a challenging environment to transform transportation in the six-county region that includes, Cook, DuPage, Kane, Lake, McHenry and Will counties.

Throughout our 20-plus year history, CACC has helped alter the local clean energy transportation landscape by reducing petroleum use by over 175 million gasoline gallon equivalents, deployed over 23,000 alternative fuel and hybrid vehicles, 220 alternative fuel stations and over 300 electric vehicle charging stations in the Chicago area. Below are CACC's comments with regards to questions we can address at this time.

Impact of Policy on EV Adoption

The National Association of State Energy Officials (NASEO) recently released their *PEV Policy Evaluation Rubric: A Methodology for Evaluating the Impact of State and Local Policies on Plug-In Electric Vehicle Adoption*¹. NASEO and their partners developed this rubric based on extensive literature review to assist decision-makers address many of the barriers experienced by the EV market. Without having to restate the numerous barriers and opportunities already identified in NASEO's and numerous other reports, CACC recommends the ICC consult NASEO's report and prioritize "strong" policies and programs for Illinois.

A priority action could be forming a multi-state leadership consortium of Midwest Governors to help promote EVs, as was done by the Western Governors Association in 2017². This coalition can be helpful to overcome barriers and leverage resources. Additionally it would send a signal to vehicle OEMs, utilities and the EVSE industry that the Midwest is a prime EV market.

Benefits of Transportation Electrification

At the end of 2017, about 15,200 Plug-in electric vehicles (PEV) were adopted in Illinois. The use of PEV here is inclusive to Battery Electric Vehicles (BEV) and Plug-In Hybrid Electric Vehicles (PHEV). Cumulatively, through 2017, a total of 0.11 terawatt-hours of electricity have been consumed by PEVs in Illinois³. Through 2017, PEVs have offset over 12 million gallons of gasoline in Illinois. A BEV could potentially offset gasoline consumption by 5,470 gallons over the lifetime assuming 15% reduction in vehicle miles traveled comparing to a conventional vehicle. A PHEV with 40-miles range could potentially offset gasoline consumption by 3500 gallons of gasoline over the lifetime assuming 64% of VMT is on electricity⁴. Increasing charging infrastructure would definitely increase the VMT on electricity for both BEV and PHEVs.

The annual CO₂ emissions are about 3,504 pounds per BEV and 5,509 pounds per PHEV in IL, which is lower than the national average due to cleaner electricity generation. The numbers are even lower than traditional per HEV which is about 6,250 pounds.⁵ A complete snapshot of EVs in Illinois is included in Attachment A.

From a manufacturing point of view, most electric vehicles sold in the United States are assembled in the United States. To date, over four-fifths of BEVs and nearly two-thirds of PHEVs have been assembled in the United States. Most of the remaining PEVs sold in the United States

¹ https://www.naseo.org/Data/Sites/1/pevpolicyrubricmethodology_naseo.pdf

² https://azgovernor.gov/sites/default/files/rev_west_plan_mou_10_3_17_final.pdf

³ Argonne E-drive Sales, <https://www.anl.gov/es/light-duty-electric-drive-vehicles-monthly-sales-updates>

⁴ Impact of Electrification of Light-duty Vehicles in the United States, <https://publications.anl.gov/anlpubs/2018/01/141595.pdf>

⁵ https://www.afdc.energy.gov/vehicles/electric_emissions.php

were assembled in Germany or Japan⁶. According to the U.S. Department of Energy “2017 U.S. Energy and Employment Report (USEER),” 258,000 U.S. manufacturing jobs were associated with electrification⁷.

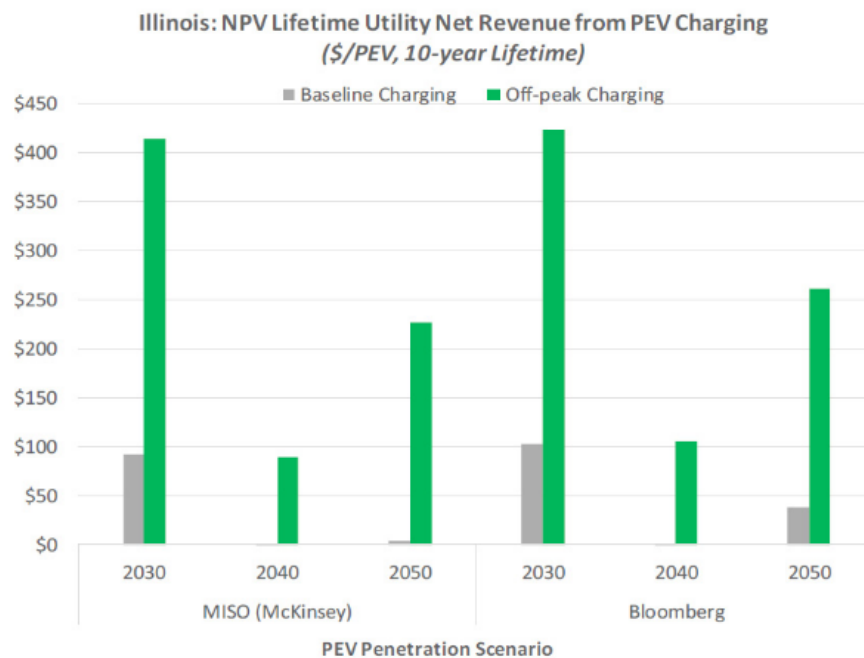
From the Midcontinent Transportation Electrification Collaborative report, “Numerous studies demonstrate that EV adoption at scale, under the right circumstances, can offer benefit for utility customers. Several studies from M.J. Bradley project that the additional utility revenues from EV charging will likely exceed the cost to supply that demand. This translates to a downward pressure on utility rates and benefits for all utility customers (whether or not they themselves purchase an EV). A recent study conducted in Illinois³ considered the impacts of a “moderate” and “high” adoption scenario for EVs in the state, with EVs reaching either 18 percent or 56 percent of light duty vehicles in 2050. In both scenarios, the net present value (benefit minus cost) of benefits to utility customers, Illinois drivers, and society at large would total \$12.2 billion (moderate) or \$43 billion (high).”⁸

⁶ <https://publications.anl.gov/anlpubs/2018/01/141595.pdf>

⁷ <https://www.energy.gov/downloads/2017-us-energy-and-employment-report>

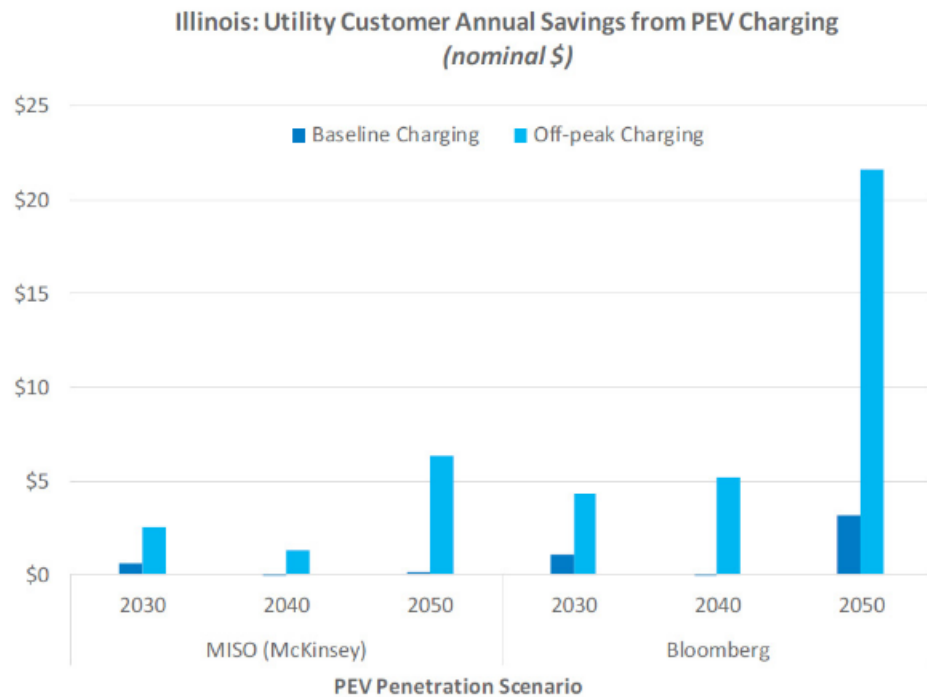
⁸ Electric Utility Roles in the Electric Vehicle (EV) Market: Consensus Principles for Utility EV Program Design: https://www.betterenergy.org/wp-content/uploads/2018/04/MTEC_White_Paper_April_2018-1-1.pdf

Figure 2: Net Present Value (NPV) of Projected Lifetime Utility Net Revenue Per Plug-In Electric Vehicle (PEV)



Source: Reprinted with permission from M.J. Bradley & Associates, "Electric Vehicle Cost-Benefit Analysis: Plug-in Electric Vehicle Cost-Benefit Analysis: Illinois," September 2017, <http://mjbradley.com/sites/default/files/IL%20PEV%20CB%20Analysis%20FINAL%2026sep17.pdf>. (accessed March 2018)

Figure 3: Potential Effect of PEV Charging Net Revenue on Utility Customer Bills (nominal \$)



Source: Reprinted with permission from M.J. Bradley & Associates, EV analysis for Illinois (September 2017).

EV Charging Infrastructure

Access to convenient, affordable charging in Illinois can expand and accelerate the EV market and support the 15,000+ existing PEV drivers who reside in 99% of Illinois' counties. The European Clean Power for Transport directive recommends that there should be one public available charging point for every 10 electric cars by 2020, also taking into consideration the type of cars, charging technology and available private recharging points.⁹ Up to September 2018, there are 1,179 public charging stations have deployed in Illinois¹⁰.

Section 1413 of the Fixing America's Surface Transportation Act (FAST Act) calls on U.S. Department of Transportation (USDOT) to designate zero-emission and alternative fuel corridors to ensure our nation's transportation system meets the modern and future needs of fleets and drivers.¹¹ In response to USDOT's request for corridor nominations, the Illinois Department of Transportation submitted various applications for alternative fuel vehicle corridor designation, including for I-80 and I-94, both of which were approved by the USDOT in the first round. These applications have multiple stakeholders and cross state borders in effort to install EVSE and signage. In collaboration with USDOT, USDOT has deemed that public DC Fast Charging be no greater than 50 miles between one station and the next on the corridor and no greater than 5 miles off the highway.

Additional DC Fast Charging is also necessary in metropolitan areas to support residents of multi-unit dwellings and the growing number of electrified high-utilization fleets such as livery, Transportation Network Providers, and delivery vehicles. Argonne National Laboratory's A-TEAM model projects with only existing charging stations, unmet charging demand in 2020 is high considering moderate EV growth rate in Chicago MSA. In 2020, drivers who are unable to complete BEV trips due to a lack of public charging are more likely to be from Cook, Lake and DuPage counties. In 2020, demand for public charging (energy per mi²) peaks N of the Loop (Mag Mile, River N, Lakeview) while demand for home charging peaks N and W of the Loop (Wicker Park, Belmont, E Garfield Park). With DCFCs, public charging peak loads can exceed home charging peak loads in Chicago MSA.¹²

⁹ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0094&qid=1540323358233&from=EN>

¹⁰ <https://www.afdc.energy.gov/data/10366>

¹¹ https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

¹² Y. Zhou, D.J. Santini, K. Vazquez, and M. Rood, Contributing Factors in Plug-in Electric Vehicle Adoption in the United States: A Metro/County Level Approach, proceedings of 2017 Transportation Research Board Annual Meeting, January 2017.

Once again, CACC applauds the ICC's recent efforts to investigate the opportunities and barriers to EV adoption and utilization in Illinois. We look forward to participating in future efforts the ICC takes to make Illinois a leader in transportation electrification.

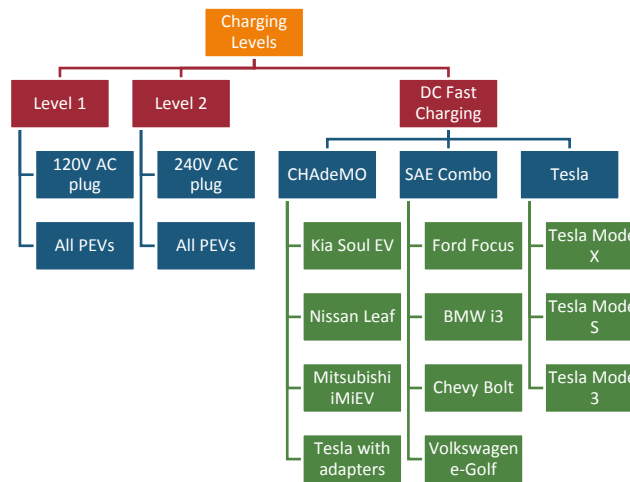
Respectfully Submitted,

Chicago Area Clean Cities Coalition

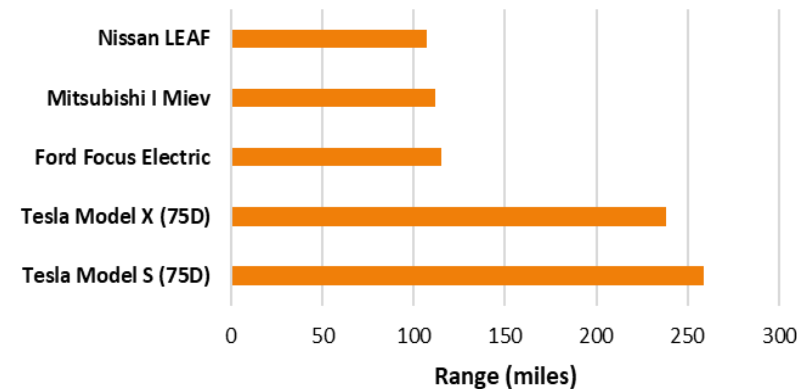
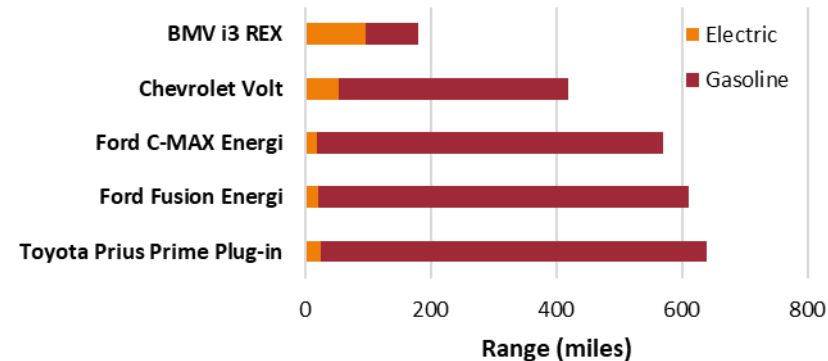
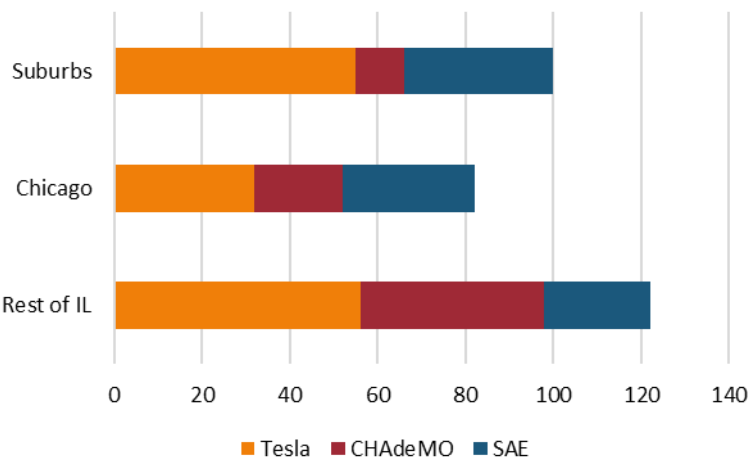
Charging Your Electric Vehicle:

There are three different levels of charging:

- **AC Level 1:** This provides 120 volts of charging, typically found in a home outlet. Overnight charging can replenish an entire PHEV battery, but not all BEV batteries.
- **AC Level 2:** This level provides 240 volts, about 10-20 miles of range per hour of charging. This can be installed for home charging, but is also used for public charging. In the home, it can replenish an entire BEV battery overnight.
- **DC Fast Charging:** This is for rapid charging along heavy traffic corridors. In 20 minutes it can provide enough battery life for a 50-70 miles of range. In ideal conditions of mild temperatures and a low initial charge, a fast charge to 80% will take about 30 minutes for a BEV, but longer in cold weather. There are three types of DC fast charging systems, depending on the vehicle: SAE J1772 combo, CHAdeMO, and Tesla. Adapter is available for Tesla Model S and Model X to use the CHAdeMO chargers.

Charging Levels and Types

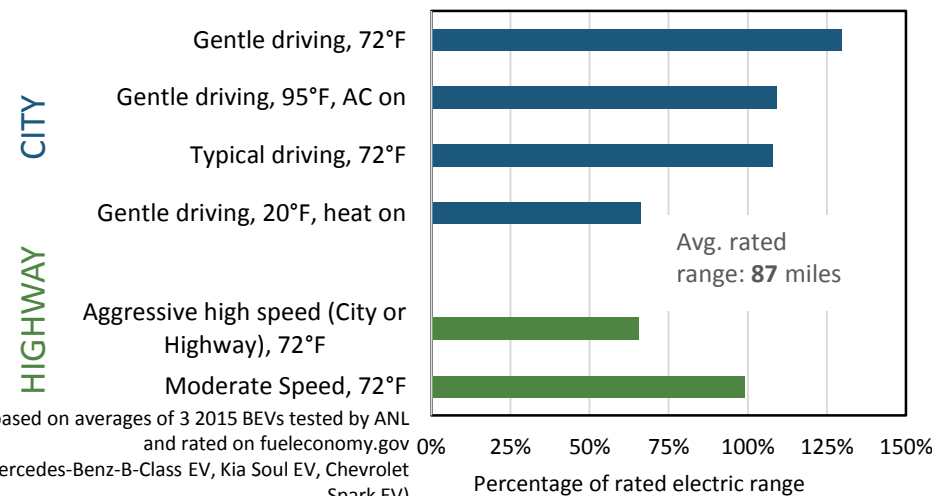
* BMW i3Rex and Outlander PHEV are the only two PHEVs to be able fast charged

EPA Rated Range of Top Selling BEV in Illinois (2016)**EPA Rated Range of Top Selling PHEV in Illinois (2016)****DC Fast Charging Outlets in IL**

Updated to July 26, 2018

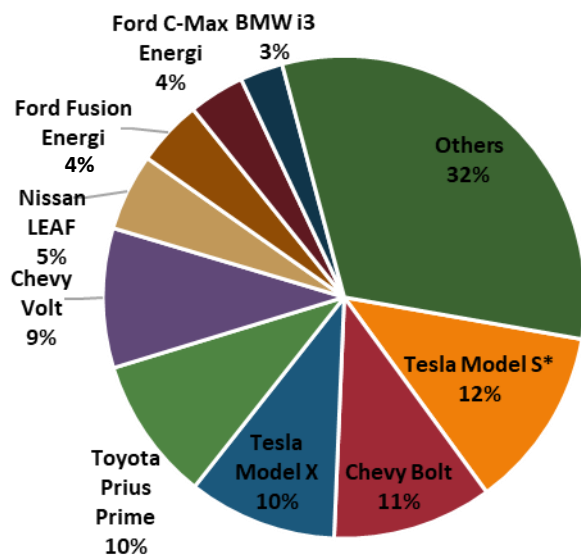
Did You Know?

A full charge can give PHEVs up to 100 miles of electric range and BEVs up to 300 miles of range, depending on the model. These distances can change depending on factors like weather, driving conditions, and driving habits. See on the right how varying your speed, driving behavior, and temperature affect battery range.

Range Depletion Dependent on Driving and Weather Conditions*

Illinois EV Fact Sheet

2017 National Sales of Leading BEVs and PHEVs



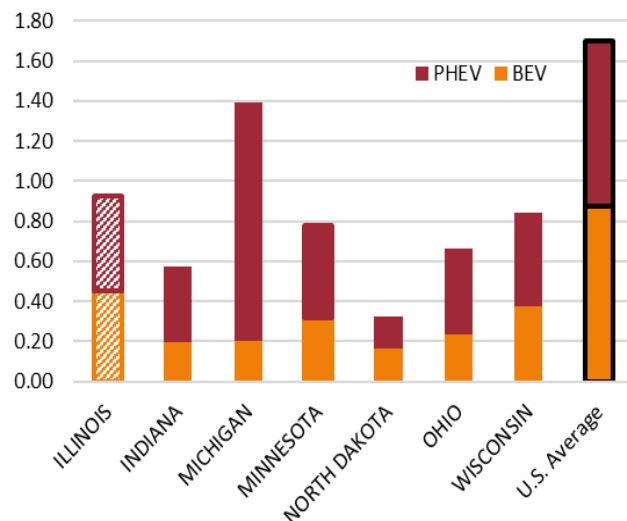
Avg. Price for
Gallon of Gasoline
in IL:

\$2.78

Avg. Price of
Electric Equivalent
Gallon in IL:

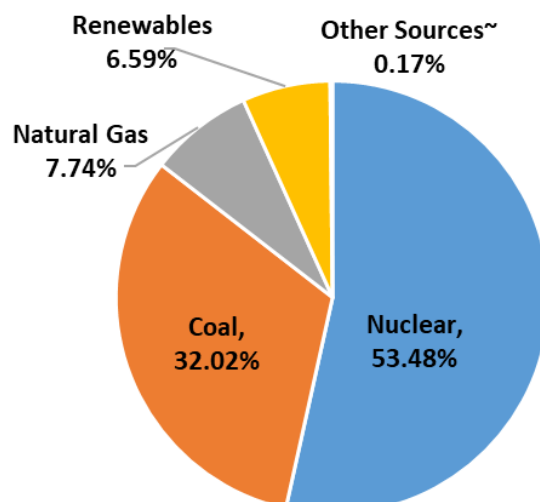
\$1.11

2016 Midwest PEV Registrations per Capita (1000)



Illinois EV Fact Sheet

2018 IL Electricity Generation Sources*

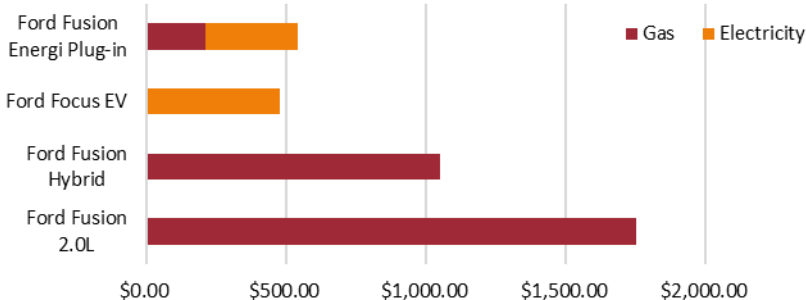


*Renewables (Wind, Solar, Biomass, and Hydro) make up 6.59% of Illinois' source for electricity. Other Sources includes Petroleum, other Gases and Other Miscellaneous Sources

Did You Know?

Electric vehicle owners in Illinois receive discounted vehicle registration fees and are exempt from state motor vehicles emissions inspections. Members of the Illinois Electric Cooperative receive discounted loan rates for the purchase of their electric vehicle, and reduced time-of-use electricity rates

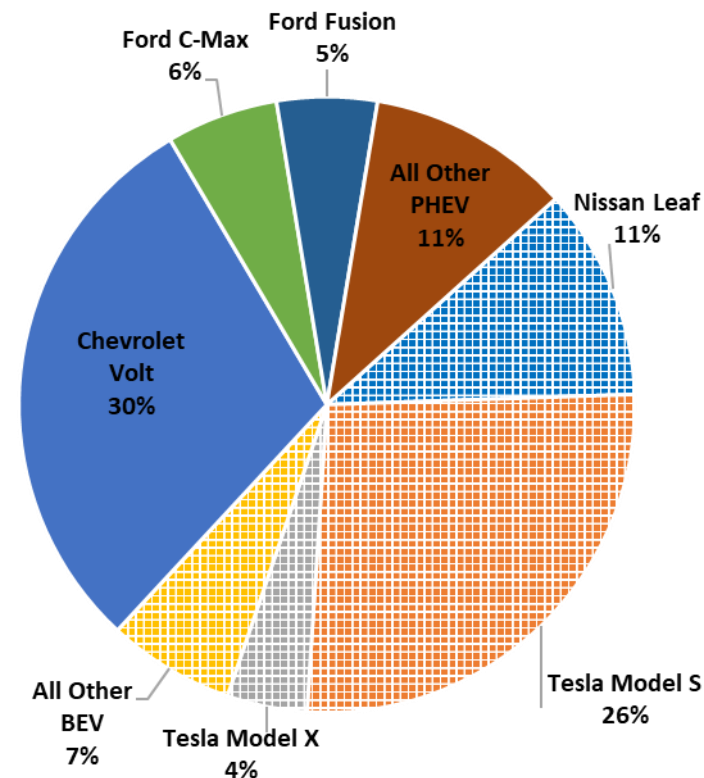
Annual Fuel Cost*



*based on 15,000 miles/year, IL averages of gasoline price of \$2.78/gallon and \$0.12/kWh of electricity

Illinois EV Fact Sheet

Illinois Leading PEV 2016 Registrations



Check model availability on AFDC. Note availability varies by state.

<https://www.afdc.energy.gov/states/>

IL Share of Total U.S. PEVs

2.15%

Reference:

Gasoline and Electricity Price, EIA
Number of chargers by type, AFDC
Vehicle fuel efficiency, Fueleconomy.gov
Registration, IHS Polk Data
PEV Sales, Hybridcars.com